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## Measurements of gluon fusion production of the Higgs boson in $H \rightarrow WW^* \rightarrow e\nu\mu\nu$ decays using pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector

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Higgs boson production via gluon-gluon fusion in proton-proton collisions is measured in the  $H \rightarrow WW^* \rightarrow e\nu\mu\nu$  decay channel. The utilized dataset is the  $\sqrt{s}=13$  TeV proton-proton collision data collected by the ATLAS experiment during Run 2 of the Large Hadron Collider with an integrated luminosity of  $139 \text{ fb}^{-1}$ . The total cross section for Higgs boson production by gluon-gluon fusion times the  $H \rightarrow WW^*$  branching ratio is measured to be  $12.0 \pm 1.4 \text{ pb}$ , in agreement with the Standard Model predictions of  $10.4 \pm 0.6 \text{ pb}$ . Higgs boson production is further characterized through measurements of Simplified Template Cross Sections in a total of 6 kinematical fiducial regions for the considered mode.

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